

## PATENT COOPERATION TREATY

**PCT**

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 03 JUN 2005

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Applicant's or agent's file reference 396/03683	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IL03/00707	International filing date (day/month/year) 28 August 2003 (28.08.2003)	Priority date (day/month/year) 28 August 2002 (28.08.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61B 5/00 and US Cl.: 600/407, 310		
Applicant EGOZI, NOAM		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of ___ sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand 25 March 2004 (25.03.2004)	Date of completion of this report 15 April 2005 (15.04.2005)	
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Runa Qaderi <i>Runa Qaderi</i> (571) 272-4741	

Form PCT/IPEA/409 (cover sheet)(July 1998)

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IL03/00707

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed.
- ☒ the description:  
pages 1-20 as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 21-26, as originally filed  
pages NONE, as amended (together with any statement) under Article 19  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☒ the drawings:  
pages 1-8, as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE, as originally filed  
pages NONE, filed with the demand  
pages NONE, filed with the letter of \_\_\_\_\_.

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/IL03/00707**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-53</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-53</u>	NO
Industrial Applicability (IA)	Claims <u>1-53</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-5, 10-17, 23-29, 33-40, 44, 48-51, and 53 lack an inventive step under PCT Article 33(3) as being obvious over Kantorovich of record in view of Dymling et al. Regarding claims 1-5, 10-17, 23-29, 33-40, 44, 48-51, and 53 Kantorovich differs from the claimed invention in that ultrasound (Doppler) signals are used instead of electromagnetic signals, see column 3 line 30 through column 4 line 25, column 24 lines 26-31, and column 30 lines 1-17. Dymling et al. disclose detecting gas bubbles using either ultrasound or laser-doppler, see column 2 lines 23-25, column 6 lines 11-28, and claim 11. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use laser-doppler instead of ultrasound-doppler in the invention of Kantorovich as taught by Dymling et al. to provide an equivalent known technique and/or improved spatial resolution.

Claims 6-9, 30-32, 45-47, and 52 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Sarussi. Kantorovich and Dymling et al. differ from the claimed invention in that physical parameters such as heart rate, oxygen saturation, and respiration rate are not explicitly addressed. Sarussi et al. demonstrates that it is known to detect such parameters using externally worn optical means such as wrist band wherein the wavelength are selectively absorbed by blood constituents, see pages 7, 13-14, 39, and 41. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to combine the circuitry of Sarussi et al. into the externally worn personal monitor of Kantorovich and Dymling et al. to provide a more comprehensive physiological monitoring of an individual in space or underwater and/or early indication of respiratory distress in such oxygen-depleted environments.

Claims 18-22 and 41-43 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Bachalo or Johnson et al. Kantorovich combined with Dymling et al. differ from the claimed invention in that AM analysis is not explicitly addressed. Bachalo and Johnson et al. demonstrate that it is well known to use AM analysis to indicate the presence and size of gas bubbles (see Bachalo column 5, lines 29-35, column 7 lines 48-58 and Johnson et al. column 10 lines 25-48, column 1, 2, and 4). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use AM analysis to detect the existence and property of a gas bubble as is well established in the art.

**NEW CITATIONS**

US 5,056,357 A (Dymling et al.) 15 October 1991, see entire document  
US 4,627,726 A (Turner) 09 December 1986, see entire document  
US 4,329,054 A (Bachalo) 11 May 1982, see entire document  
US 5,394,732 A (Johnson et al.) 07 March 1995, see entire document  
WO 99/63883 A1 (Sarussi) 16 December 1999, see entire document